

Operating Systems Review



User



Computer,
including HW
and SW

Hardware

- Examples of hardware:

Software

- Examples of software:

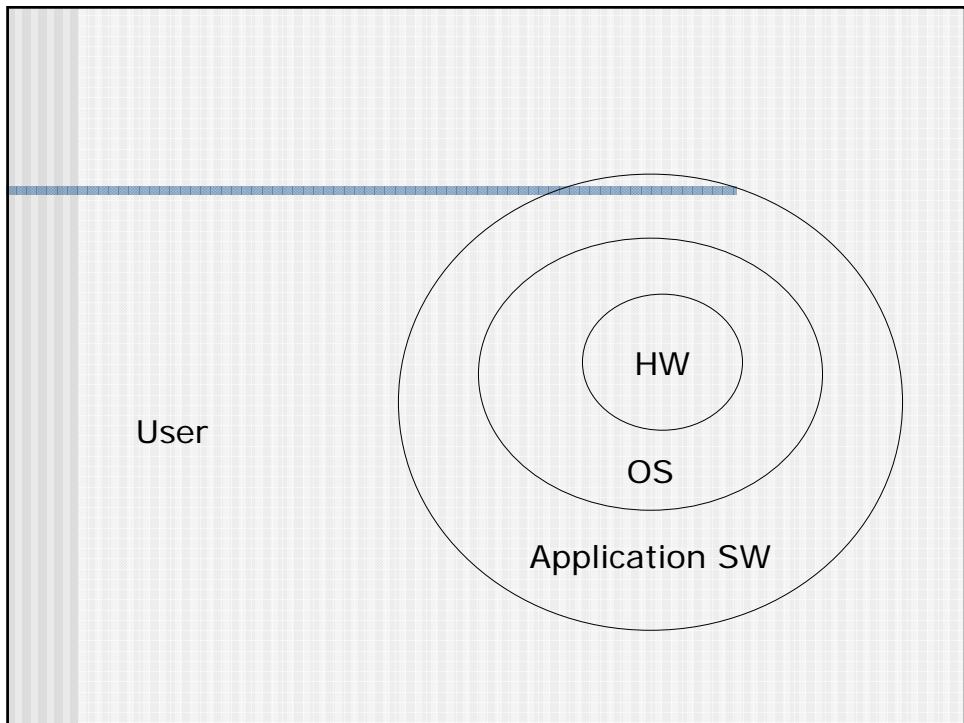
Two types of software

- Examples of application software:

- Examples of system software:

What is an operating system?

- A piece of system software that ...



As a resource manager

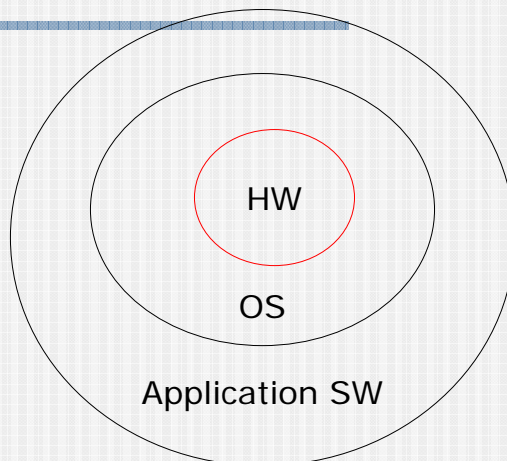
- An OS manages ...

As a service provider

- An OS provides (what kind of services) to (whom)

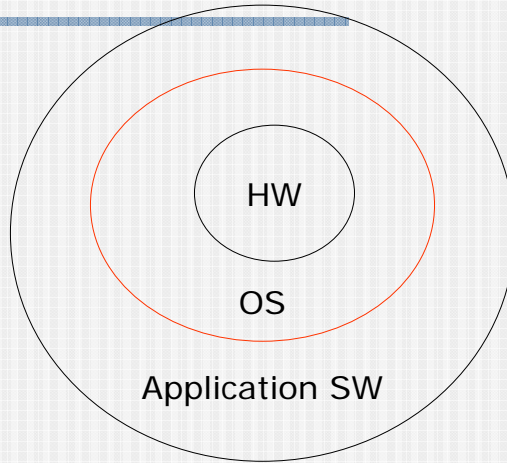
Device drivers = interface between
HW and OS

User



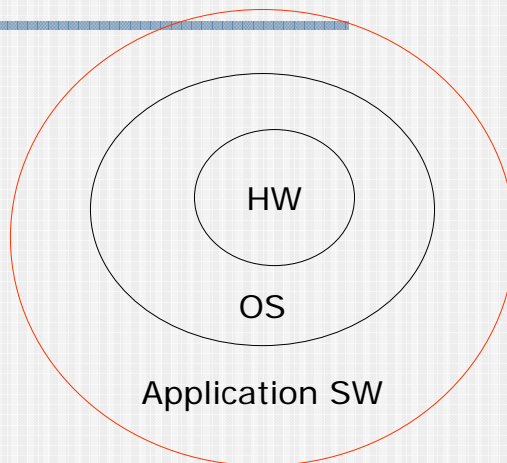
System calls = interface between OS and AP

User



Shell = interface between user and computer

User



What is a shell?

- A program
- A command interpreter
- Interface between user and computer
- An interactive interface
- A programming language, a shell program is called a shell script

Shell command format

- Shell command =
command [options] [arguments]
- Command names are often cryptic
- Options usually starts with –
- Arguments can be filenames or other information

How shell works

```
While (1) {  
    print out a prompt  
    read in a line of command and break it up into tokens  
    pre-process the command  
    locate the command token  
    if command == "exit" then terminate  
    if command is internal then  
        execute the command  
    else // external  
        search for the command program, fork a process to  
        execute it  
}
```

Man – online help

- Man cmd -- presents the online manual page for the command cmd
- Try man ls, man cp, man rm, etc
- Try man man
- Try man -k

Command line processing

- Command aliasing
- Filename substitution
- Command substitution
- Variable substitution
- History substitution

Input/Output redirection and Pipe

- `Cmd < inputfile`
- `Cmd > outputfile`
- `Cmd1 | cmd2`